



FEDERAL RESERVE BANK
OF DALLAS

ROBERT D. McTEER, JR.
PRESIDENT
AND CHIEF EXECUTIVE OFFICER

DALLAS, TEXAS
75265-5906

July 26, 1996

Notice 96-68

TO: The Chief Executive Officer of each member bank and others concerned in the Eleventh Federal Reserve District

SUBJECT

**Joint Agency Policy Statement on
Managing Interest Rate Risk**

DETAILS

The Board of Governors of the Federal Reserve System has approved a joint agency policy statement providing guidance to banks on sound practices to be followed for managing interest rate risk.

The policy statement, which earlier had been approved by the Federal Deposit Insurance Corporation and the Comptroller of the Currency, emphasizes the importance of a sound risk management process and of adequate oversight by a bank's board of directors and senior management. The assessment of interest rate risk management made by examiners in accordance with the joint policy statement will be incorporated into a bank's overall risk management rating.

ATTACHMENT

A copy of the joint agency policy statement as it appears on pages 33166-172, Vol. 61, No. 124, of the *Federal Register* dated June 26, 1996, is attached.

MORE INFORMATION

For more information, please contact Julie Mills at (214) 922-6229. For additional copies of this Bank's notice, please contact the Public Affairs Department at (214) 922-5254.

Sincerely yours,

Robert D. McTeer, Jr.

practices for managing interest rate risk. The policy statement identifies the key elements of sound interest rate risk management and describes prudent principles and practices for each of these elements. It emphasizes the importance of adequate oversight by a bank's board of directors and senior management and of a comprehensive risk management process. The policy statement also describes the critical factors affecting the agencies' evaluation of a bank's interest rate risk when making a determination of capital adequacy. The principles for sound interest rate risk management outlined in this policy statement apply to all commercial banks and FDIC-supervised savings banks (banks).

This policy statement augments the action taken by the agencies in August 1995 to implement the portion of section 305 of the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) addressing risk-based capital standards for interest rate risk. It also replaces the proposed policy statement that the agencies issued for comment in August 1995 regarding a supervisory framework for measuring and assessing banks' interest rate exposures. The agencies have elected not to pursue a standardized measure and explicit capital charge for interest rate risk at this time. This decision reflects concerns about the burden, accuracy, and complexity of a standardized measure and recognition that industry techniques for measuring interest rate risk are continuing to evolve. Rather than dampening incentives to improve risk measures by adopting a standardized measure at this time, the agencies hope to encourage these industry efforts. Nonetheless, the agencies will continue to place significant emphasis on the level of a bank's interest rate risk exposure and the quality of its risk management process when evaluating a bank's capital adequacy. The principles and practices identified in this policy statement provide the standards upon which the agencies will evaluate the adequacy and effectiveness of a bank's interest rate risk management.

EFFECTIVE DATE: June 26, 1996.

FOR FURTHER INFORMATION CONTACT:

OCC: Christina Benson, Capital Markets Specialist, or, Margot Schwadron, Financial Analyst, (202/874-5070), Office of the Chief National Bank Examiner; Michael Carhill, Deputy Director, Risk Analysis Division (202/874-5700); and Ronald Shimabukuro, Senior Attorney, Legislative and Regulatory Activities Division (202/874-5090), Office of the Comptroller of

DEPARTMENT OF THE TREASURY

Office of the Comptroller of the Currency

[Docket No. 96-13]

FEDERAL RESERVE SYSTEM

[Docket No. R-0802]

FEDERAL DEPOSIT INSURANCE CORPORATION

**Joint Agency Policy Statement:
Interest Rate Risk**

AGENCIES: Office of the Comptroller of the Currency (OCC), Treasury; Board of Governors of the Federal Reserve System (Board); and Federal Deposit Insurance Corporation (FDIC).

ACTION: Joint policy statement.

SUMMARY: The OCC, the Board, and the FDIC (collectively referred to as the agencies) are issuing this joint agency policy statement (policy statement) to bankers to provide guidance on sound

the Currency, 250 E Street, S.W., Washington, D.C. 20219.

Board of Governors: James Embersit, Manager (202/452-5249), or William Treacy, Supervisory Financial Analyst (202/452-3859), Division of Banking Supervision and Regulation; Gregory Baer, Managing Senior Counsel (202/452-3236), Legal Division, Board of Governors of the Federal Reserve System. For the hearing impaired only, Telecommunication Device for the Deaf (TDD), Dorothea Thompson (202/452-3544), Board of Governors of the Federal Reserve System, 20th and C Streets, N.W., Washington, D.C. 20551.

FDIC: William A. Stark, Assistant Director (202/898-6972) or Miguel Browne, Deputy Assistant Director (202/898-6789), Division of Supervision; Jamey Basham, Counsel, (202/898-7265), Legal Division, Federal Deposit Insurance Corporation, 550 17th Street, N.W., Washington, D.C. 20429.

SUPPLEMENTARY INFORMATION:

I. Background

Interest rate risk is the exposure of a bank's current and future earnings and capital arising from adverse movements in interest rates. Changes in interest rates affect a bank's earnings by changing its net interest income and the level of other interest-sensitive income and operating expenses. Changes in interest rates also affect the underlying economic value of the bank's assets, liabilities, and off-balance sheet items. These changes occur because the present value of future cash flows, and in many cases the cash flows themselves, change when interest rates change. The combined effects of the changes in these present values reflect the change in the bank's underlying economic value as well as provide an indicator of the expected change in the bank's future earnings arising from the change in interest rates. While interest rate risk is inherent in the role of banks as financial intermediaries, a bank that has a high level of risk can face diminished earnings, impaired liquidity and capital positions, and, ultimately, greater risk of insolvency.

II. FDICIA Requirements and Agencies' Response

Section 305 of FDICIA, Pub. L. 102-242, 105 Stat. 2236, 2354 (12 U.S.C. 1828 note), requires the agencies to revise their risk-based capital guidelines to take adequate account of interest rate risk. On August 2, 1995 the agencies published a final rule implementing section 305 that amended their risk-based capital standards to specify that the agencies will include, in their

evaluations of a bank's capital adequacy, an assessment of the exposure to declines in the economic value of the bank's capital due to changes in interest rate risk. See 60 FR 39490 (August 2, 1995). This final rule, which became effective on September 1, 1995, adopts a "risk assessment" approach under which capital for interest rate risk is evaluated on a case-by-case basis, considering both quantitative and qualitative factors.

The final rule did not adopt a measurement framework for assessing the level of a bank's interest rate risk exposure, nor did it specify a formula for determining the amount of capital that would be required. The intent of the agencies at that time was to implement an explicit minimum capital charge for interest rate risk at a future date, after the agencies and the industry had gained more experience with a proposed supervisory measure that the agencies issued for comment in August 1995. See 60 FR 39495 (August 2, 1995).

The agencies have undertaken considerable efforts to develop a supervisory measure for interest rate risk that provides sufficient accuracy, transparency, and predictability for establishing an explicit charge for interest rate risk. These efforts, and the comments the agencies received on them, are summarized in sections III and IV that follow. After careful consideration of those comments and additional analyses and research by agencies' staff, the agencies have decided that concerns about the burdens, costs, and potential incentives of implementing a standardized measure and explicit capital treatment currently outweigh the potential benefits that such measures would provide. The agencies are cognizant that techniques for measuring interest rate risk are continuing to evolve, and they do not want to impede that progress by mandating or implementing prescribed risk measurement techniques. Rather, the agencies wish to work with the industry to encourage efforts to improve risk measurement techniques. These efforts, the agencies believe, may lead to greater convergence within the industry on the methodologies used for measuring this risk and may, at a future date, facilitate more quantitative and explicit capital treatments for interest rate risk.

Hence, the agencies have concluded that the best course of action at this time, is to continue to assess capital adequacy for interest rate risk under a risk assessment approach and to provide the industry with further guidance on prudent interest rate risk management practices. Section V of this preamble

describes the agencies' risk assessment approach for capital. The policy statement, which follows section V, provides the agencies' guidance and expectations on sound interest rate risk management.

III. Earlier Proposals for Supervisory Model and Explicit Capital Charges

Since the enactment of FDICIA, the agencies have issued two notices of proposed rulemakings on interest rate risk, as well as one advance notice of proposed rulemaking (ANPR).

The ANPR was issued in 1992 and sought comment on a proposed supervisory measurement system and an explicit capital requirement based on the results of that measurement system. See 57 FR 35507 (August 10, 1992). The measurement system proposed in the 1992 ANPR would have applied to all banks and used a duration-weighted maturity ladder to estimate the change in a bank's economic value for an assumed 100 basis point parallel shift in market interest rates. Under the 1992 ANPR, a bank whose measured exposure exceeded a threshold level, equivalent to 1 percent of total assets, would have been required to allocate capital sufficient to compensate for the estimated change in economic value above the threshold level.

The agencies received approximately 180 comment letters on the 1992 ANPR. The majority of commenters raised concerns about the accuracy of the proposed measure and its use as a basis for an explicit capital charge. Therefore, in September 1993, the agencies published a notice of proposed rulemaking which incorporated numerous changes to the 1992 ANPR in an effort to address those concerns and improve the proposed model's accuracy. See 58 FR 48206 (September 14, 1993). These changes included:

(1) A proposed screen that would exempt banks identified as potentially low-risk from the supervisory measurement framework.

(2) Various refinements to the supervisory model, including changes to the method for determining risk weights to allow for different risk weights for rising and falling interest rate environments; the specific treatment of non-maturity deposits; the reporting of amortizing and non-amortizing financial instruments; and the addition of another time band to provide for greater accuracy.

The September 1993 proposal also sought comment on allowing banks to use their own internal models as the basis for establishing a capital charge and on two different methods for assessing capital. One method, referred

to as the minimum capital standard, would establish an explicit capital charge for interest rate risk based on either the supervisory model or a bank's internal model results. The other method, referred to as the risk assessment approach, would evaluate the need for capital on a case-by-case basis, considering both quantitative and qualitative factors.

The agencies collectively received a total of 133 comments on the September 1993 proposal. The majority of industry comments focused on four issues: a preference for the risk assessment approach, approval of the proposed use of internal models, concerns about the accuracy of the proposed supervisory model, and suggestions that the agencies' primary focus should be on near-term (i.e., one- to two-year) reported earnings instead of economic value.

In August 1995, along with the final rule amending risk-based capital standards to adopt the risk assessment approach, the agencies issued for comment a joint policy statement that would establish a supervisory framework for measuring banks' interest rate risk exposures. See 60 FR 39495 (August 2, 1995). The results of that framework would be one factor that examiners would consider in evaluating a bank's capital adequacy for interest rate risk. In addition, the agencies noted that the framework was intended to provide the foundation for the development of an explicit capital charge once the agencies and industry gained more experience with the measurement framework.

The August 1995 proposal built upon and modified the agencies' earlier proposals for a supervisory measurement framework in an effort to improve the framework's accuracy and applicability to a diverse population of banks. Modifications included:

(1) Changing the proposed exemption test so that only banks with total assets less than \$300 million, a "1" or "2" composite supervisory CAMEL rating, and only moderate holdings of assets with intermediate or long term repricing characteristics would be exempted from new interest rate risk reporting requirements and the supervisory model.

(2) Refinements to a baseline supervisory model for which all non-exempt banks would provide Consolidated Reports of Condition and Income (Call Report) information. These refinements included separate reporting and treatment of fixed- and adjustable-rate residential mortgage loans and securities and other amortizing assets; requiring banks holding certain types of

financial instruments to report estimates of changes in the market value sensitivities of those instruments for a 200 basis point interest rate shock; and, extending the range of maturities that banks could use when reporting their non-maturity deposits (demand deposits, savings, NOW, and money market demand accounts).

(3) The introduction of supplemental modules for non-exempted banks that had concentrations in fixed- or adjustable-rate residential mortgage loans and pass-through securities. Banks subject to these modules would report additional information on the coupon distributions of their fixed-rate mortgages and information on the lifetime and periodic caps of their adjustable-rate mortgages.

Although these modifications were designed to enhance and improve upon the agencies' earlier proposals, the majority of commenters on the August 1995 proposal reiterated many previous concerns about accuracy, burden, and incentives, and urged the agencies to reconsider their approach and efforts to devise a uniform and standardized model.

IV. Factors Leading to the Agencies' Decision to Not Pursue a Supervisory Model

As already noted, the agencies have decided not to pursue a standardized model for supervisory purposes or assessing capital charges for interest rate risk at this time. This decision reflects the continued concerns expressed by the industry in their comment letters on the August 1995 proposal and the numerous difficulties the agencies encountered in trying to develop and implement a standardized measure that had sufficient accuracy and flexibility to be applicable to a broad range of commercial banks, while not imposing undue regulatory and reporting burdens on banks.

Throughout the evolution of the agencies' efforts to incorporate an explicit capital charge for interest rate risk into their risk-based capital standards, industry comments have expressed four fundamental concerns:

(1) An approach whose sole focus is on economic value, rather than on reported earnings, may be inappropriate;

(2) A supervisory measure that by necessity, makes uniform and simplifying assumptions about the characteristics of a typical bank's assets and liabilities may be inaccurate for a given institution;

(3) The proposed treatment for non-maturity deposits may be inappropriate in many cases; and

(4) Any supervisory model may create improper incentives for internal risk management and measurement. Each of these concerns is addressed in turn.

The agencies continue to believe economic value sensitivity is a valid and important concept, especially when assessing an institution's capital adequacy and, as noted, have amended their capital standards to reflect this view. Nonetheless, the agencies recognize that changes in a bank's reported earnings is also important and that a bank needs to consider both earnings and economic perspectives when assessing the full scope of its exposure. This policy statement adopted by the agencies sets forth principles for monitoring and controlling interest rate risk from both of these perspectives.

The industry's concerns about the validity and accuracy of a standardized model present a more difficult and serious issue. Some of the changes in the August 1995 proposal attempted to address these concerns. For example, supplemental schedules for residential mortgage loans and pass-through securities were a response to earlier industry concerns regarding the use of prepayment assumptions that were based on an average of outstanding mortgage securities. By collecting additional data on the embedded options in an individual bank's mortgage portfolio, the accuracy of the proposed model was potentially enhanced. However, the changes were not without cost. In particular, the supplemental schedules and associated risk weights added to the reporting burden and overall complexity of the proposal. By giving the appearance of providing a more precise measure of risk, they also increased the likelihood that the standardized measure would replace or stifle development of yet more accurate internal measures of risk exposure. This added reporting burden and complexity illustrates the difficulties the agencies have faced in trying to strike an appropriate balance between accuracy and burden.

Not only did the mortgage schedules add burden, they did not fundamentally solve the difficulties of structuring a standardized model which could take into account the heterogeneous nature of commercial banks' balance sheet structures and activities. In recent years, banks have been offering and holding a growing variety of products. Many of these products, such as certain collateralized mortgage obligations and structured notes, can have complex cash flow characteristics that vary significantly with each transaction. The August 1995 proposal attempted to address this problem by requiring banks

to self-report the sensitivity of these and certain other instruments. The diversity and complexity in banks' holdings, however, are not limited to a bank's investment and off-balance sheet instruments. Increasingly, banks have a variety of pricing indices and embedded options incorporated into their commercial and retail bank products, making it increasingly difficult to model these products with any simple and uniform measure.

The diversity and complexity of commercial banks' balance sheets is one reason why the banking agencies have decided not to pursue adopting the net portfolio value model developed and used by the Office of Thrift Supervision (OTS) or any uniform supervisory model. Although the banking agencies have benefited a great deal from the expertise and experience of the OTS in this area, the OTS model was designed to ascertain the interest rate risk exposure of insured depository institutions with concentrations of residential mortgage assets, especially adjustable rate mortgages. These instruments require data-intensive, complex models to obtain accurate valuations and interest rate sensitivities. Since most commercial banks do not hold high concentrations of these instruments, the agencies were concerned about the substantial reporting requirements and measurement complexity that would be associated with an OTS type of model if applied to commercial banks.

Many industry commenters believe that the agencies' treatment in the August 1995 proposal of non-maturity deposits understated their effective maturity and urged the agencies to allow banks greater flexibility in the reporting and treatment of them. Assumptions about the effective maturity of these deposits are critical factors in assessing most commercial banks' interest rate risk exposure, since these deposits often represent 40 percent or more of a bank's liability base. Thus, while the agencies have elected not to adopt supervisory assumptions for calculating the effective maturities of non-maturity deposits, the policy statement cautions banks to make reasonable assumptions about customer behavior in this area, and periodically re-evaluate whether the assumptions are reasonable in light of experience.

The supervisory treatment of non-maturity deposits in measuring interest rate risk also illustrates the industry's concern regarding the potential incentives a supervisory model could present to a bank. In particular, some industry commenters have stated that if the agencies adopted assumptions that

understated the effective maturities of a bank's non-maturity deposits, it could induce a bank to inappropriately shorten its asset maturities, leave the bank exposed to falling interest rates, and unnecessarily reduce its net interest margins. The agencies, however, are also concerned that an assumption that overstated the maturity of these deposits could mistakenly lead banks to extend their asset maturities, leaving them exposed to rising interest rates and significant loss in economic value.

Many commenters voiced broader concerns about the potential incentives that a standardized supervisory model may have on how banks manage and measure their risk. A frequent concern has been that a supervisory model would become the industry standard against which internal models would be benchmarked and tested, thus diverting resources away from improving internal models and assumptions.

The agencies neither wish to create inappropriate incentives, nor divert industry resources from the development of better interest rate risk measurements. The policy statement consequently emphasizes each institution's responsibility to develop and refine interest rate risk management practices that are appropriate and effective for its specific circumstances.

V. Risk Assessment Approach

The risk assessment approach that the agencies use to evaluate a bank's capital adequacy for interest rate risk relies on a combination of quantitative and qualitative factors. The agencies will use various quantitative screens and filters as tools to identify banks that may have high exposures or complex risk profiles, to allocate examiner resources, and to set examination priorities. These tools rely on Call Report data and various economic indicators and data. To make assessments about the level of a bank's interest rate exposure, examiners augment the insights provided by these preliminary indicators with the quantitative exposure estimates generated by a bank's internal risk measurement systems. For most banks the results of their internal risk measures are and will continue to be the primary factor that examiners consider when assessing a bank's level of exposure.

On the qualitative side, examiners will continue to evaluate whether a bank follows sound risk management practices for interest rate risk when assessing its aggregate interest rate risk exposure and its need for capital. Such practices include, but are not limited to, adequate risk measurement systems. Indeed, as the agencies explored various

approaches for developing supervisory risk measures, it reinforced their appreciation for the critical roles that management and board oversight, risk controls, and prudent judgment and experience play in the interest rate risk management process.

Banks that are found to have high levels of exposure and/or weak management practices will be directed by the agencies to take corrective action. Such actions will include directives to raise additional capital, strengthen management expertise, improve management information and measurement systems, reduce levels of exposure, or a combination thereof.

Joint Agency Policy Statement on Interest Rate Risk

Purpose

This joint agency policy statement ("Statement") provides guidance to banks on prudent interest rate risk management principles. The three federal banking agencies—the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency ("agencies")—believe that effective interest rate risk management is an essential component of safe and sound banking practices. The agencies are issuing this Statement to provide guidance to banks on this subject and to assist bankers and examiners in evaluating the adequacy of a bank's management of interest rate risk.¹

This Statement applies to all federally-insured commercial and FDIC supervised savings banks ["banks"]. Because market conditions, bank structures, and bank activities vary, each bank needs to develop its own interest rate risk management program tailored to its needs and circumstances. Nonetheless, there are certain elements that are fundamental to sound interest rate risk management, including appropriate board and senior management oversight and a comprehensive risk management process that effectively identifies, measures, monitors and controls risk. This Statement describes prudent principles and practices for each of these elements.

The adequacy and effectiveness of a bank's interest rate risk management process and the level of its interest rate exposure are critical factors in the agencies' evaluation of the bank's capital adequacy. A bank with material

¹ The focus of this Statement is on the interest rate risk found in banks' non-trading activities. Each agency has separate guidance regarding the prudent risk management of trading activities.

weaknesses in its risk management process or high levels of exposure relative to its capital will be directed by the agencies to take corrective action. Such actions will include recommendations or directives to raise additional capital, strengthen management expertise, improve management information and measurement systems, reduce levels of exposure, or some combination thereof, depending upon the facts and circumstances of the individual institution.

When evaluating the applicability of specific guidelines provided in this Statement and the level of capital needed for interest rate risk, bank management and examiners should consider factors such as the size of the bank, the nature and complexity of its activities, and the adequacy of its capital and earnings in relation to the bank's overall risk profile.

Background

Interest rate risk is the exposure of a bank's financial condition to adverse movements in interest rates. It results from differences in the maturity or timing of coupon adjustments of bank assets, liabilities and off-balance-sheet instruments (repricing or maturity-mismatch risk); from changes in the slope of the yield curve (yield curve risk); from imperfect correlations in the adjustment of rates earned and paid on different instruments with otherwise similar repricing characteristics (basis risk—e.g. 3 month Treasury bill versus 3 month LIBOR); and from interest rate-related options embedded in bank products (option risk).

Changes in interest rates affect a bank's earnings by changing its net interest income and the level of other interest-sensitive income and operating expenses. Changes in interest rates also affect the underlying economic value² of the bank's assets, liabilities and off-balance sheet instruments because the present value of future cash flows and, in some cases, the cash flows themselves, change when interest rates change. The combined effects of the changes in these present values reflect the change in the bank's underlying economic value.

As financial intermediaries banks accept and manage interest rate risk as

an inherent part of their business. Although banks have always had to manage interest rate risk, changes in the competitive environment in which banks operate and in the products and services they offer have increased the importance of prudently managing this risk. This guidance is intended to highlight the key elements of prudent interest rate risk management. The agencies expect that in implementing this guidance, bank boards of directors and senior managements will provide effective oversight and ensure that risks are adequately identified, measured, monitored and controlled.

Board and Senior Management Oversight

Effective board and senior management oversight of a bank's interest rate risk activities is the cornerstone of a sound risk management process. The board and senior management are responsible for understanding the nature and level of interest rate risk being taken by the bank and how that risk fits within the overall business strategies of the bank. They are also responsible for ensuring that the formality and sophistication of the risk management process is appropriate for the overall level of risk. Effective risk management requires an informed board, capable management and appropriate staffing.

For its part, a bank's board of directors has two broad responsibilities:

- To establish and guide the bank's tolerance for interest rate risk, including approving relevant risk limits and other key policies, identifying lines of authority and responsibility for managing risk, and ensuring adequate resources are devoted to interest rate risk management.

- To monitor the bank's overall interest rate risk profile and ensure that the level of interest rate risk is maintained at prudent levels.

Senior management is responsible for ensuring that interest rate risk is managed on both a long range and day-to-day basis. In managing the bank's activities, senior management should:

- Develop and implement policies and procedures that translate the board's goals, objectives, and risk limits into operating standards that are well understood by bank personnel and that are consistent with the board's intent.

- Ensure adherence to the lines of authority and responsibility that the board has approved for measuring, managing, and reporting interest rate risk exposures.

- Oversee the implementation and maintenance of management information and other systems that

identify, measure, monitor, and control the bank's interest rate risk.

- Establish internal controls over the interest rate risk management process.

Risk Management Process

Effective control of interest rate risk requires a comprehensive risk management process that includes the following elements:

- Policies and procedures designed to control the nature and amount of interest rate risk the bank takes including those that specify risk limits and define lines of responsibilities and authority for managing risk.

- A system for identifying and measuring interest rate risk.

- A system for monitoring and reporting risk exposures.

- A system of internal controls, review and audit to ensure the integrity of the overall risk management process.

The formality and sophistication of these elements may vary significantly among institutions, depending upon the level of the bank's risk and the complexity of its holdings and activities. Banks with non-complex balance sheet structures presenting relatively low risk levels and whose senior managers are actively involved in the details of day-to-day operations may be able to rely on a relatively basic and less formal interest rate risk management process, provided their procedures for managing and controlling risks are communicated clearly and are well understood by all relevant parties.

More complex organizations and those with higher interest rate risk exposures or holdings of complex instruments with significant interest rate-related option characteristics may require more elaborate and formal interest rate risk management processes. Risk management processes for these banks should address the institution's broader and typically more complex range of financial activities and provide senior managers with the information they need to monitor and direct day-to-day activities. Moreover, the more complex interest rate risk management processes employed at these institutions require adequate internal controls that include internal and/or external audits or other appropriate oversight mechanisms to ensure the integrity of the information used by the board and senior management in overseeing compliance with policies and limits. Those individuals involved in the risk management process (or risk management units) in these banks must be sufficiently independent of the business lines to ensure adequate

² The economic value of an instrument represents an assessment of the present value of the expected net future cash flows of the instrument, discounted to reflect market rates. A bank's economic value of equity (EVE) represents the present value of the expected cash flows on assets minus the present value of the expected cash flows on liabilities, plus or minus the present value of the expected cash flows on off-balance sheet instruments.

separation of duties and to avoid conflicts of interest.

Risk Controls and Limits

The board and senior management should ensure that the structure of the bank's business and the level of interest rate risk it assumes are effectively managed and that appropriate policies and practices are established to control and limit risks. This includes delineating clear lines of responsibility and authority for the following areas:

- Identifying the potential interest rate risk arising from existing or new products or activities;
- Establishing and maintaining an interest rate risk measurement system;
- Formulating and executing strategies to manage interest rate risk exposures; and,
- Authorizing policy exceptions.

In some institutions the board and senior management may rely on a committee of senior managers to manage this process. An institution should also have policies for identifying the types of instruments and activities that the bank may use to manage its interest rate risk exposure. Such policies should clearly identify permissible instruments, either specifically or by their characteristics, and should also describe the purposes or objectives for which they may be used. As appropriate to the size and complexity of the bank, the policies should also help delineate procedures for acquiring specific instruments, managing portfolios, and controlling the bank's aggregate interest rate risk exposure.

Policies that establish appropriate risk limits that reflect the board's risk tolerance are an important part of an institution's risk management process and control structure. At a minimum these limits should be board approved and ensure that the institution's interest rate exposure will not lead to an unsafe and unsound condition. Senior management should maintain a bank's exposure within the board-approved limits. Limit controls should ensure that positions that exceed certain predetermined levels receive prompt management attention. An appropriate limit system should permit management to control interest rate risk exposures, initiate discussion about opportunities and risk, and monitor actual risk taking against predetermined risk tolerances.

A bank's limits should be consistent with the bank's overall approach to measuring interest rate risk and should be based on capital levels, earnings, performance, and the risk tolerance of the institution. The limits should be appropriate to the size, complexity and capital adequacy of the institution and

address the potential impact of changes in market interest rates on both reported earnings and the bank's economic value of equity (EVE). From an earnings perspective a bank should explore limits on net income as well as net interest income in order to fully assess the contribution of non-interest income to the interest rate risk exposure of the bank. Such limits usually specify acceptable levels of earnings volatility under specified interest rate scenarios. A bank's EVE limits should reflect the size and complexity of its underlying positions. For banks with few holdings of complex instruments and low risk profiles, simple limits on permissible holdings or allowable repricing mismatches in intermediate- and long-term instruments may be adequate. At more complex institutions, more extensive limit structures may be necessary. Banks that have significant intermediate- and long-term mismatches or complex options positions should have limits in place that quantify and constrain the potential changes in economic value or capital of the bank that could arise from those positions.

Identification and Measurement

Accurate and timely identification and measurement of interest rate risk are necessary for proper risk management and control. The type of measurement system that a bank requires to operate prudently depends upon the nature and mix of its business lines and the interest rate risk characteristics of its activities. The bank's measurement system(s) should enable management to recognize and identify risks arising from the bank's existing activities and from new business initiatives. It should also facilitate accurate and timely measurement of its current and potential interest rate risk exposure.

The agencies believe that a well-managed bank will consider both earnings and economic perspectives when assessing the full scope of its interest rate risk exposure. The impact on earnings is important because reduced earnings or outright losses can adversely affect a bank's liquidity and capital adequacy. Evaluating the possibility of an adverse change in a bank's economic value of equity is also useful, since it can signal future earnings and capital problems. Changes in economic value can also affect the liquidity of bank assets, because the cost of selling depreciated assets to meet liquidity needs may be prohibitive.

Since the value of instruments with intermediate and long maturities or embedded options is especially sensitive to interest rate changes, banks

with significant holdings of these instruments should be able to assess the potential longer-term impact of changes in interest rates on the value of these positions and the future performance of the bank.

Measurement systems for evaluating the effect of rates on earnings may focus on either net interest income or net income. Institutions with significant non-interest income that is sensitive to changing rates should focus special attention on net income. Measurement systems used to assess the effect of changes in interest rates on reported earnings range from simple maturity gap reports to more sophisticated income simulation models. Measurement approaches for evaluating the potential effect on economic value of an institution may, depending on the size and complexity of the institution, range from basic position reports on holdings of intermediate, long-term and/or complex instruments to simple mismatch weighting techniques to formal static or dynamic cash flow valuation models.

Regardless of the type and level of complexity of the measurement system used, bank management should ensure the adequacy and completeness of the system. Because the quality and reliability of the measurement system is largely dependent upon the quality of the data and various assumptions used in the model, management should give particular attention to these items.

The measurement system should include all material interest rate positions of the bank and consider all relevant repricing and maturity data. Such information will generally include (i) current balance and contractual rate of interest associated with the instruments and portfolios, (ii) principal payments, interest reset dates, maturities, and (iii) the rate index used for repricing and contractual interest rate ceilings or floors for adjustable-rate items. The system should also have well-documented assumptions and techniques.

Bank management should ensure that risk is measured over a probable range of potential interest rate changes, including meaningful stress situations. In developing appropriate rate scenarios, bank management should consider a variety of factors such as the shape and level of the current term structure of interest rates and historical rate movements. The scenarios used should incorporate a sufficiently wide change in market interest rates (e.g., +/- 200 basis points over a one year horizon) and include immediate or gradual changes in market interest rates as well as changes in the shape of the

yield curve in order to capture the material effects of any explicit or embedded options.

Assumptions about customer behavior and new business activity should be reasonable and consistent with each rate scenario that is evaluated. In particular, as part of its measurement process, bank management should consider how the maturity, repricing and cash flows of instruments with embedded options may change under various scenarios. Such instruments would include loans that can be prepaid without penalty prior to maturity or have limits on the coupon adjustments, and deposits with unspecified maturities or rights of early withdrawal.

Monitoring and Reporting Exposures

Institutions should also establish an adequate system for monitoring and reporting risk exposures. A bank's senior management and its board or a board committee should receive reports on the bank's interest rate risk profile at least quarterly. More frequent reporting may be appropriate depending on the bank's level of risk and the potential that the level of risk could change significantly. These reports should allow senior management and the board or committee to:

- Evaluate the level and trends of the bank's aggregated interest rate risk exposure.
- Evaluate the sensitivity and reasonableness of key assumptions—such as those dealing with changes in the shape of the yield curve or in the pace of anticipated loan prepayments or deposit withdrawals.
- Verify compliance with the board's established risk tolerance levels and limits and identify any policy exceptions.
- Determine whether the bank holds sufficient capital for the level of interest rate risk being taken.

The reports provided to the board and senior management should be clear, concise, and timely and provide the information needed for making decisions.

Internal Control, Review, and Audit of the Risk Management Process

A bank's internal control structure is critical to the safe and sound functioning of the organization generally, and to its interest rate risk management process in particular. Establishing and maintaining an effective system of controls, including the enforcement of official lines of authority and the appropriate separation of duties, are two of management's more important responsibilities. Individuals responsible for evaluating risk

monitoring and control procedures should be independent of the function they are assigned to review.

Effective control of the interest rate risk management process includes independent review and, where appropriate, internal and external audit. The bank should conduct periodic reviews of its risk management process to ensure its integrity, accuracy and reasonableness. Items that should be reviewed and validated include:

- The adequacy of, and personnel's compliance with, the bank's internal control system.
- The appropriateness of the bank's risk measurement system given the nature, scope and complexity of its activities.
- The accuracy and completeness of the data inputs into the bank's risk measurement system.
- The reasonableness and validity of scenarios used in the risk measurement system.
- The validity of the risk measurement calculations. The validity of the calculations is often tested by comparing actual versus forecasted results.

The scope and formality of the review and validation will depend on the size and complexity of the bank. At large banks, internal and external auditors may have their own models against which the bank's model is tested. Banks with complex risk measurement systems should have their models or calculations validated by an independent source—either an internal risk control unit of the bank or by outside auditors or consultants.

The findings of this review should be reported to the board on an annual basis. The report should provide a brief summary of the bank's interest rate risk measurement techniques and management practices. It also should identify major critical assumptions used in the risk measurement process, discuss the process used to derive those assumptions and provide an assessment of the impact of those assumptions on the bank's measured exposure.

Dated: May 13, 1996.

Eugene A. Ludwig,
Comptroller of the Currency.

By order of the Board of Governors of the Federal Reserve System.

Dated: May 23, 1996.

William W. Wiles,
Secretary of the Board.

By order of the Board of Directors.

Dated at Washington, DC, this 14th day of May, 1996.

Robert E. Feldman,

Deputy Executive Secretary.

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